

ABSTRACT

To improve the performance of superconducting cables, a composition method for obtaining a bar-like semifinished product by exclusively cold plastic deformation operations has been devised, and which includes the steps of: forming round-section, mono- or multifilament, superconducting copper bars of relatively long length; assembling the bars about a cylindrical copper core of substantially the same length, using assembly templates which open book-fashion and are fitted to and slide along an assembly bench, the templates having through holes arranged in a circle to support the bars, and a central through seat for supporting the core; tying the bars onto an outer lateral surface of the core; sliding onto one end of the assembly so formed a number of metal supporting rings resting on the assembly bench, while sliding the templates off the opposite end of the assembly; sliding a copper tube onto the assembly so formed, while at the same time cutting the ties in axial sequence and sliding off the supporting rings; and performing a number of drawing operations on the finished assembly to gradually reduce the cross section and increase the length of the assembly to obtain a bar-like semifinished product of the required dimensions, from which, after salt bath heat treatment, a superconducting cable is obtained by cold drawing.

(Figures 2, 3 and 4)